

HANDBOOK OF PHONOLOGICAL DATA
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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850 Hopi	850 Hopi	850 Hopi
850 01 p	20 eng	57 epsilon-over-short ⁶⁴ (tag(-),allo) */a-over-short/
850 02 p-preaspirated ³⁰	21 eng-voiceless ³¹	
850 03 t	22 eng-labialized	58 epsilon
850 04 t-preaspirated ³⁰	23 l	59 a-front-long
850 05 k [k-palatalized] ⁶⁰	24 l-voiceless ³¹	60 a-over-short *[epsilon-over-short] [a-front-over-short] ⁶⁴ [schwa-over-short] ⁶⁴
850 06 k-preaspirated ³⁰	25 r-fricative-retroflex ⁰² [r-fricative-retroflex-voiceless] ⁶¹	61 a
850 07 k-labialized	26 glottal stop	62 a-long
850 08 k-preaspirated-labialized ³⁰	27 h	63 i-trema-over-short ⁶⁵ (tag(-),allo) */i-over-short/
850 09 q		64 e-trema [i-trema] ⁶⁶ (allo,free)
850 10 q-preaspirated ³⁰	51 i-over-short *[i-trema-over-short] [iota-over-short] ⁶² (free)	65 e-trema-long [i-trema-long] ⁶⁶ (allo,free)
850 11 t/s [t/s-palatalized] ⁶⁰	52 i [iota] ⁶² (free) [iota/schwa] ⁶³	66 u-over-short
850 12 t/s-preaspirated ³⁰		67 o/w
850 13 v [f] ⁶¹ [beta] ⁰¹ (free) [phi] ^{01 61} (free)	53 i-long	68 o-long/w
850 14 s	54 u-trema-over-short [o-open-over-short] ⁶³ (free) [o-trema-over-short] ⁶³ (free)	69 yod
850 15 m		70 yod-voiceless
850 16 m-voiceless ³¹	55 o-trema	71 w
850 17 n	56 o-trema-long	72 w-voiceless
850 18 n-voiceless ³¹		
850 19 n-palatal		
850 \$a Hopi \$b Toreva \$d Uto-Aztecan \$e NW Arizona \$f 4,800 \$g Merritt Ruhlen \$h Jim Lorentz (review) \$i John Crothers (editor)		
850 \$a Whorf, Benjamin Lee \$b 1946 \$c The Hopi Language, Toreva Dialect \$e Linguistic Structures of Native America, ed. by H. Hoijer, pp.158-183 \$f (Viking Fund Publications in Anthropology, No. 6) \$g New York: Wenner-Gren Foundation \$h informant \$i "several years"		
850 \$a Voegelin, C. F. \$b 1956 \$c Phonemicizing for dialect study with reference to Hopi \$d Language, 32:116-135		
850 \$a ACCENT \$A Voegelin's analysis of Hopi accent (p.128-132) is restated here. Hopi words have an accentual pattern which can be described in terms of a primary accented syllable, and secondarily accented or unaccented syllables, determined by the location of the primary accent and the structure of the other syllables. Voegelin distinguishes three degrees of vowel length (which do not correspond to Whorf's three vowel lengths) and two degrees of consonant length, (a third degree of consonant length being apparently non-distinctive). The primary accent falls on the first or second syllable of a word. There are two primary accents: 1) high pitch with stress, found with either short or long vowels, and 2) rising pitch with stress, found only on over-long vowels. (Accordingly overlength of vowels in Voegelin's system can be regarded as an accentual feature.) If unaccented, the first syllable of a word is unstressed. An unstressed syllable has the same tone as, or a slightly lower tone than, the immediately following syllable. Following the accented syllable stress and tone are determined by these rules: a short vowel not followed by a geminate consonant (i.e. a single mora syllable) is unstressed		

directly following a stressed syllable with (a) a short vowel, (b) a long consonant at the end of the syllable; other syllables are stressed and have high level pitch. Loudness of stresses decreases progressively, except that a stressed one mora syllable (short vowel followed by short consonant) is less loud than an immediately following long vowel (which always has stress). The final stressed syllable of a word has low tone. While I cannot find a statement by Voegelin to this effect, it appears from the examples that the rising tone occurs only on the primary accented syllable; this is also implied by the rules for secondary stress (i.e. stress after the primary accented syllable), since there is no provision for any syllable other than the primary accented syllable to have rising tone with stress. [JHC]

850 \$a LONG CONSONANTS \$A Whorf does not recognize any length distinction in consonants, though it seems that his "clipped" syllables might be reinterpreted as ending in long consonants. Voegelin sets up three degrees of consonantal length, though the over-long consonants seem to be merely idiolectal. (p.128) [JHC]

850 \$a LONG VOWELS \$a OVER-SHORT VOWELS \$A Both Whorf and Voegelin recognize three degrees of vowel length, but probably only two lengths are actually distinctive. Also, the different degrees of length do not correspond in the two analyses. (Voegelin, p.128, note) Whorf says that stressed syllables may be long, medium, "which is half-long with a decline of force before any following consonant," or "clipped" (here interpreted as "over-short"), "which is short and staccato, interrupted at full force by the closure of the following consonant, and not occurring in word final vowels." (p.159) It seems likely that these "clipped" syllables correspond to those that Voegelin writes with short vowel followed by geminate consonant. If this is true, then the addition of geminate consonants to Whorf's system would allow the vowel system to be reduced to two distinctive lengths. As for Voegelin's system, his short (one mora) vowels seem to correspond to Whorf's "clipped" and "medium" lengths; his long (two mora) vowels correspond perhaps to Whorf's long vowels; his over-long vowels (three moras) are found only with the rising accent, and do not seem to correspond to anything in Whorf's analysis. If overlength in Voegelin's system is reinterpreted as a type of accent, then only two distinctive lengths remain. [JHC]

850 \$a PHONOLOGICAL WORD \$A "Thus there is fairly common occurrence of unlimited intersyllable clusters C-C within and between words while intersyllable CC-C occurs uncommonly between words and rarely and in very limited forms within words. Between adjacent consonants within words (except in certain combinations, e.g. voiceless continuant plus stop) there is open transition, i.e. a murmur-glide between the consonants, while in clusters made by adjacent words there is closed or silent transition. Words may have any number of syllables up to seven or eight, or rarely more, but two, three, and four syllables are most common." (p.159)

850 \$a PREASPIRATED STOPS \$A The Toreva dialect of Hopi has a series of preaspirated stops and the affricate /t/s-preaspirated/. But: "The preaspirates do not occur in Sipaulovi or Polacca, being replaced by plain stops, preceded by long vowels. In Oraibi the preaspirates do not exist as single phonemes but are represented by /h/ plus stop, /h/ occurring freely before all consonants in Oraibi, whereas in Toreva /h/-clusters are very rare and when they do occur, [larel] obviously something different from preaspiration." (p.160) Voegelin (p.124) writes preaspiration as /h/ plus stop, while the combination of syllable final /h/ followed by plain stop is represented as /h-long/ plus stop.

850 \$a STRESS \$A "There are three general levels of force-and-pitch stress, not fixed registers but rather varying with the length of the word: high, middle, and low. It is convenient to class the first two as firm stress. A word of three or more syllables may have all three, or certain combinations of any two. A disyllable has high and low, or middle and low, or two high; when unmarked, high followed by low is to be understood, this type being vastly preponderant. A monosyllable has either high (unmarked) or middle (marked) but in this case there is no contrast between middle and low, the middle-stressed monosyllable being often louder than the low syllable within a word. High has maximum force and moderately high even pitch, or high pitch falling before a pause; middle and low have about the same low pitch but middle has the greater force.... Length and stress are mainly independent, though partly interconnected by features of prosodic or rhythmic patterns of which each word has its own." (p.159) Compare Voegelin's account of accent, which is much more systematic.

850 \$a SYLLABLE \$A CV(:)(C)(C) \$A There is "a very limited number of -CC combinations." (p.159)

850 01 \$A "/v/ is unrounded and varies freely between bilabial and labiodental." (p.160)

850 02 \$A "/r-fricative-retroflex/ is untrilled retroflex, and slightly spirantal." (p.160)

850 30 \$A "The preaspirates occur only syllable-initial after a firm-stressed vowel." (p.160)

850 31 \$A The voiceless sonorants occur only syllable-finally.

850 60 \$A /k/ is palatalized syllable-initially before /a, epsilon, i/ (non-back vowels), while /t/s/ is simply palatalized syllable-initially. (p.160)

850 61 \$A /v/ and /r-fricative-retroflex/ are devoiced syllable-finally. (p.160f)

- 850 62 \$A /i/ and /i-over-short/ may be realized as lower-high vowels between consonants in the same syllable.
- 850 63 \$A Before /q/, /i/ is realized as [iota/schwa] and /u-trema-over-short/ may be realized as [o-open-over-short] or [o-trema-over-short]. (p.161)
- 850 64 \$A /a-over-short/ is realized as [epsilon-over-short] or [a-front-over-short] after /yod/ or /k/, and as [schwa-over-short] before /k/. (p.161)
- 850 65 \$A /i-over-short/ is realized as [i-trema-over-short] after a labial consonant. (p.161)
- 850 66 \$A /e-trema/ and /e-trema-long/ are raised to /i-trema/ and /i-trema-long/ before labials, and vary freely with the higher variants elsewhere.